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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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10/724,666

12/01/2003

Chang-Ho Suh

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11/10/2008

THE FARRELL LAW FIRM, P.C.

333 EARLE OVINGTON BOULEVARD

SUITE 701

UNIONDALE, NY 11553

EXAMINER

MALEK, LEILA

ART UNIT

PAPER NUMBER

2611

MAIL DATE

DELIVERY MODE

11/10/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

| | | | |
|------------------------------|------------------------|---------------------|--|
| Office Action Summary | Application No. | Applicant(s) | |
| | 10/724,666 | SUH ET AL. | |
| | Examiner | Art Unit | |
| | LEILA MALEK | 2611 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 August 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4 and 9-13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4 and 9-13 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. Applicants' arguments filed on 08/04/2008 have been fully considered but they are not persuasive.

Applicants' Argument: Applicants argue that "Although paragraph 81 of Mody discloses the expression of "even sub-carriers", Applicants respectfully submit that the "even sub-carriers" of Mody are different from the "subcarrier identified by a unique number that is an even number" recited in Claims 1 and 11 of the present invention. That is, the even subcarriers of Claims 1 and 11 are subcarriers wherein data other than null data is inserted among a first short preamble sequence with elements. Meanwhile, paragraph 81 of Mody discloses that the even sub-carriers that map the preamble sequence are transmitted through antenna 1. Therefore, the even sub-carriers disclosed in paragraph 81 of Mody map all of the elements that the sequence comprises irrespective of null data or data other than null data, unlike Claims 1 and 11 of the present invention."

Examiner's Response: Examiner respectfully disagrees. Examiner asserts that Mody in paragraphs 0081-0082 does not show that any null data has been inserted for elements associated with even subcarriers. Therefore Applicants' argument is not persuasive.

Applicants' Argument: Applicants argue that "even though paragraph 83 of Mody discloses the expression "odd sub-carriers", the odd sub-carriers described by Mody are different from the "subcarrier identified by a unique number that is an odd number"

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recited in Claims 1 and 11 of the present invention. That is, the odd subcarriers recited in Claims 1 and 11 of the present invention are subcarriers that data other than null data among the elements that the second short preamble sequence comprises. The odd sub-carriers disclosed in paragraph 83 of Mody are sub-carders that map the preamble sequence transmitted through antenna 2. Therefore, the odd sub-carriers disclosed in paragraph 83 of Mody maps all the elements that the sequence comprises irrespective of null data or data other than null data, unlike Claims 1 and 11 of the present invention.”

Examiner’s Response: Examiner respectfully disagrees. Examiner asserts that Mody in paragraphs 0083-0084 does not show that any null data has been inserted for elements associated with odd subcarriers. Therefore Applicants’ argument is not persuasive.

Applicants’ Argument: Applicants argue that “While IFFT, according to the Examiner, may be well known in the art, Applicants respectfully submit that it is not well known in the art for the feature of transforming one of the first and the second short preamble sequences to generate a preamble sequence according to a transmission rule by using an IFFT, as recited in Claims 1 and 11 of the present invention.”

Examiner’s Response: Examiner respectfully disagrees. Examiner asserts that using IFFT instead of IDFT is extremely well known in the art for the reasons stated in the previous office action. As evidence Examiner would like to call the attention of the Applicants to reference Olszewski (US 2003/0223354, see paragraph 0122 and Fig. 4,

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blocks 4 and 10). This reference is provided only as an example to show that IFFT has been used instead of IDFT to transform a preamble sequence.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-4 and 9-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mody et al. (hereafter, referred as Mody) (US 2003/0072452).

As to claims 1 and 11, Mody discloses a method/apparatus for generating a preamble sequence (see paragraphs 0012 and 0013) in an orthogonal frequency division multiplexing (OFDM) communication system (see e.g. paragraph 0067), the method comprising: generating a first short preamble sequence (see paragraph 0066) with elements corresponding to the plurality of subcarriers, wherein data other than null data is inserted for elements associated with a subcarrier identified by a unique number that is an even number (see paragraphs 0081-0085); generating a second short preamble sequence with elements corresponding to the plurality of subcarriers, wherein data other than null data is inserted for elements associated with a subcarrier identified by a unique number that is an odd number (see paragraphs 0083-0085); and generating a preamble sequence in a time domain by transforming one of the first and second short preamble sequences according to a transmission rule by using an inverse Discrete

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Fourier transform (see Fig. 3, block 52). Mody discloses all the subject matters claimed in claims 1 and 11, except that the transformation has been performed by using an IFFT block. However, since it is extremely well known in the art that IFFT is just a fast algorithm to IDFT, it would have been obvious to one of ordinary skill in the art at the time of invention to modify Mody and use an IFFT to perform IDFT to reduce the amount of calculations and perform a fast transformation.

As to claim 2, Mody discloses that a peak- to-average power ratio (PAPR) is decreased through at least two antennas in the OFDM communication system (see paragraphs 0012, 0061, 0081, and 0083).

As to claim 3, Mody discloses that the first-short preamble sequence is adapted to be transmitted via one of the at least two antennas (see paragraph 0081).

As to claim 4, Mody discloses that the second short preamble sequence is adapted to be transmitted via one of the at least two antennas (see paragraph 0083).

As to claims 9 and 12, although the preamble sequence disclosed by Mody (see paragraph 0084) is slightly different than the one disclosed by the Applicants as cited in claims 9 and 12, however, it would have been a matter of design choice to choose a different preamble sequence in order to meet the system requirements. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to use any preamble sequence (for instance the one used by the Applicants) to meet the system requirements.

As to claims 10 and 13, although the preamble sequence disclosed by Mody (see paragraph 0082) is slightly different than the one disclosed by the Applicants as cited in

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claims 10 and 13, it would have been a matter of design choice to choose a different preamble sequence in order to meet the system requirements. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to use any preamble sequence (for instance the one used by the Applicants) to meet the system requirements.

Conclusion

3. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LEILA MALEK whose telephone number is (571)272-8731. The examiner can normally be reached on 9AM-5:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammad Ghayour can be reached on 571-272-3021. The fax phone

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number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Leila Malek
Examiner
Art Unit 2611

/L. M./
/Leila Malek/
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/Mohammad H Ghayour/
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